CERTIFICATION OF PARTIAL CLOSURE MOTOROLA INC. PRICE ROAD PLANT TEMPE, ARIZONA

Job No. 2174J066

WESTERN TECHNOLOGIES INC.

Phoenix
3737 East Broadway Road
P.O. Box 21387
Phoenix, Arizona 85036
(602) 437-3737

Flagstaff
2400 East Huntington Drive
Flagstaff, Arizona 86001
(602) 774-8708

Tucson
423 South Olsen Avenue
Tucson, Arizona 85719
(602) 624-8894

Albuquerque
3808 Academy Parkway North, N.E.
Albuquerque, New Mexico 87109
(505) 345-6586

Farmington
400 South Lorena Avenue
Farmington, New Mexico 87401
(505) 327-4966

Las Vegas
300 West Boston Avenue
Las Vegas, Nevada 89102
(702) 382-7483

TABLE OF CONTENTS

Partial Closure

Owner or Operator Certification

(The owner or operator must below certify that the activities performed in the partial closure are in accordance with the specifications of the closure plan and modifications to the plan outlined in this document, previously approved by the Bureau of Waste Control. Accordingly, the certification will be straightforward, no matter how complex closure itself has been.)

I, Maurice Chait, of
owner or operator
7402 S. PRICE ROAD, TEMPE, AZ. 85284
Motorola Inc., ~~2100 East Elliot Road, Mesa, Arizona~~
name and address of hazardous waste facility

hereby state and certify that, to the best of my knowledge and belief, the underground hazardous waste storage tank
hazardous waste treatment, storage, or disposal unit

has been closed in accordance with specifications of the previously submitted and approved closure plan with modifications, and that the closure was completed on the 24th day of August, 1984.

Maurice Chait
signature

9-7-84
date

Professional Engineer Closure Certification

(The independent registered professional engineer(s) must below certify that the partial closure has been conducted in accordance with the approved closure plan with modifications as outlined in this document. The engineer is not certifying the adequacy of the activities or the plan; he is certifying only that, in his judgment, the activities performed were in accordance with the specifications in the approved plan. At final closure the professional engineer who certifies that closure has been completed may rely in part on earlier certifications of any partial closures and in part on his inspections of the facility as a whole to ensure that those partially closed areas have been maintained.)

I, R. Bruce Scott, P.E., a certified professional engineer, hereby certify, to the best of my knowledge and belief, that I have made visual inspection(s) of

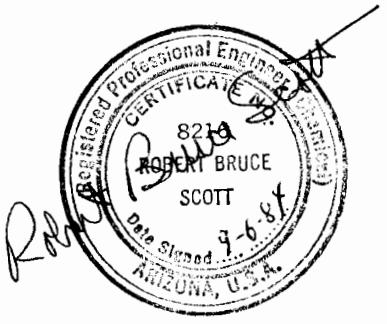
the hazardous waste storage tank at
hazardous waste treatment, storage or disposal unit

Motorola Inc., and that closure of the aforementioned
hazardous waste facility

unit has been performed in accordance with the specifications contained in the modified closure plan for the facility approved by the Bureau of Waste Control, Arizona Department of Health Services.

R. Bruce Scott
signature

9-6-84
date



Professional Seal Pursuant to ARS §32-125
Issued by the Arizona State Board of Technical Registration

CERTIFICATION
OF
PARTIAL CLOSURE
MOTOROLA INC.
PRICE ROAD PLANT
TEMPE, ARIZONA

Job No. 2174J066

1. INTRODUCTION

Motorola Inc. owns and operates a plant, the Price Road Plant, at ~~2100 East Elliot Road~~ 7402 S. Price Rd, Tempe, Arizona. This plant is part of the Bipolar Integrated Circuits Group headquartered at 2200 West Broadway Road, Mesa, Arizona. The plant's EPA identification number is AZT000618512.

Waste solvents are generated at the Price Road Plant. The waste solvents were accumulated in an underground tank located north of the main plant building. See Figure 1, Site Plan. The tank capacity was 500 gallons. See Figure 2. The types of waste solvents accumulated are evidenced by the estimated solvent usage at the Plant presented in Table I.

2. PARTIAL CLOSURE

A. Emergency

On the afternoon of September 14, 1983, a decrease was noticed in the liquid level in the underground waste solvent tank. The change in liquid level indicated a possible liquid loss of as much as 200 gallons. The production areas were immediately notified to stop using the waste solvent system and begin accumulating waste solvent in drums. On September 15, 1983, a contractor vacuum truck removed the remaining solvent from the tank. The solvent was hauled to a permitted hazardous waste facility. See Appendix A --- Manifest No. 832-I-003.

Also on September 15th, a well point probe was installed adjacent to the tank, and an underground airspace sample was taken to determine if a leak had taken place or if an error had been made in the tank level determination. The underground airspace sample, when analyzed by gas chromatography, indicated high levels of acetone, propanol, and butyl acetate. A liquid sample of the tank contents was also taken and sent to an outside laboratory. Laboratory analyses indicated a two phase system in the tank --- 20 percent organic and 80 percent water. Analytical results are presented in Table II.

On September 16, 1983, telephone reports of the chemical release were made to the Arizona Department of Health Services, EPA Region IX, and the National Response Center.

On September 19, 1983, the waste solvent tank was removed from the earth and pressure tested. A pinhole leak was found in the bottom of the tank directly below the fill pipe. Approximately 32 cubic yards of soil and a concrete slab were removed from the former tank location. This material was hauled in a covered container to a permitted hazardous waste disposal facility. See Appendix A --- Manifest Nos. 006-000001 and 006-000002.

B. Closure Plan

In accordance with 40 CFR 265.112, a closure plan for the hazardous waste facility at the Motorola Price Road Plant was on file. See Appendix B.

Because of the unique and emergency conditions which existed, the closure plan was not followed. Further,

advance notice of the partial closure as required in 40 CFR 265.112(c) was not given due to the emergency nature of the incident. However, it should be noted that all activities associated with the partial closure were approved by the then Hazardous Waste Section of the Bureau of Waste Control, Arizona Department of Health Services.

C. Excavation

Removal of the tank and contaminated soils produced a pit 8 feet wide, 9 feet long, and 15 1/2 feet deep. In order to assure removal of all contaminated soil, soil samples from the four pit side walls and from the pit bottom were obtained and chemically analyzed.

Analyses of the soil samples revealed that not all of the contaminated soil had been removed. The majority of the still contaminated soil was located along the north wall of the pit. It was recommended that the pit be enlarged. See Appendix C --- Soil Sampling Report, No. 1.

An additional two feet of soil was removed from the north wall, and the pit was deepened another two feet. Approximately 15 cubic yards of contaminated soil was removed and transported in a covered container to a permitted hazardous waste disposal facility for disposal. See Appendix A --- Manifest No. 006-000003.

The soils in the side walls and enlarged pit bottom were again sampled and analyzed. See Appendix D --- Soil Sampling Report, No. 2. Again, it was found that not all of the contaminated soil had been removed. Further enlargement of the pit was recommended.

The pit was enlarged a second time. Additional soil was removed from all side walls, and the pit was deepened. Final dimensions of the pit were 14 feet wide, 16 feet long and 20 feet deep.

Approximately 33 cubic yards of additional soil were removed. The soil was transported to and disposed of at a permitted hazardous waste disposal facility. See Appendix A --- Manifest Nos. 006-000004 and 006-000006.

Soil samples were taken a third time from the side walls and bottom of the pit. Chemical analyses were performed. See Appendix E --- Soil Sampling Report, No. 3. Test results showed that removal of contaminated soils was complete.

During the three soil sampling and testing efforts, a representative sample was subjected to analyses via a gas chromatograph/mass spectrometer for volatile and semi-volatile priority pollutants. Only volatile organic compounds, identical with that previously found, were detected. No semi-volatile organics were found. See Appendix F --- Priority Pollutant Analyses.

D. Final Closure

Even though tests showed that cleanup had been completed, additional soil was removed from the pit and placed on plastic sheeting immediately adjacent the pit. Sampling and analyses of the spread-out soil showed some lingering organic contamination. The soil was allowed to aerate until no detectable levels of solvents could be found. See Tables III and IV.

The solvent tank was cleaned using a detergent-water solution. The rinseate was removed from the tank via a vacuum tank truck and disposed of with the first manifested liquid waste removed from the site. The cleaned solvent tank was disposed of as scrap steel.

The associate piping from the plant building to the former waste tank was rinsed using a detergent-water solution. Chemical analyses were performed on the rinseate. See Table V. A second rinse was necessitated when elevated levels of butyl cellosolve and xylene were found in the first rinse waters. No contaminants were found in the second rinse waters. The piping was then capped and abandoned.

The pit was backfilled. ABC was placed in the bottom of the pit. Then, the aerated soil was replaced into the pit in two feet deep lifts. Each lift was power tamped and watered. This continued until the original grade was reached. All backfilling activity was completed by August 24, 1984.

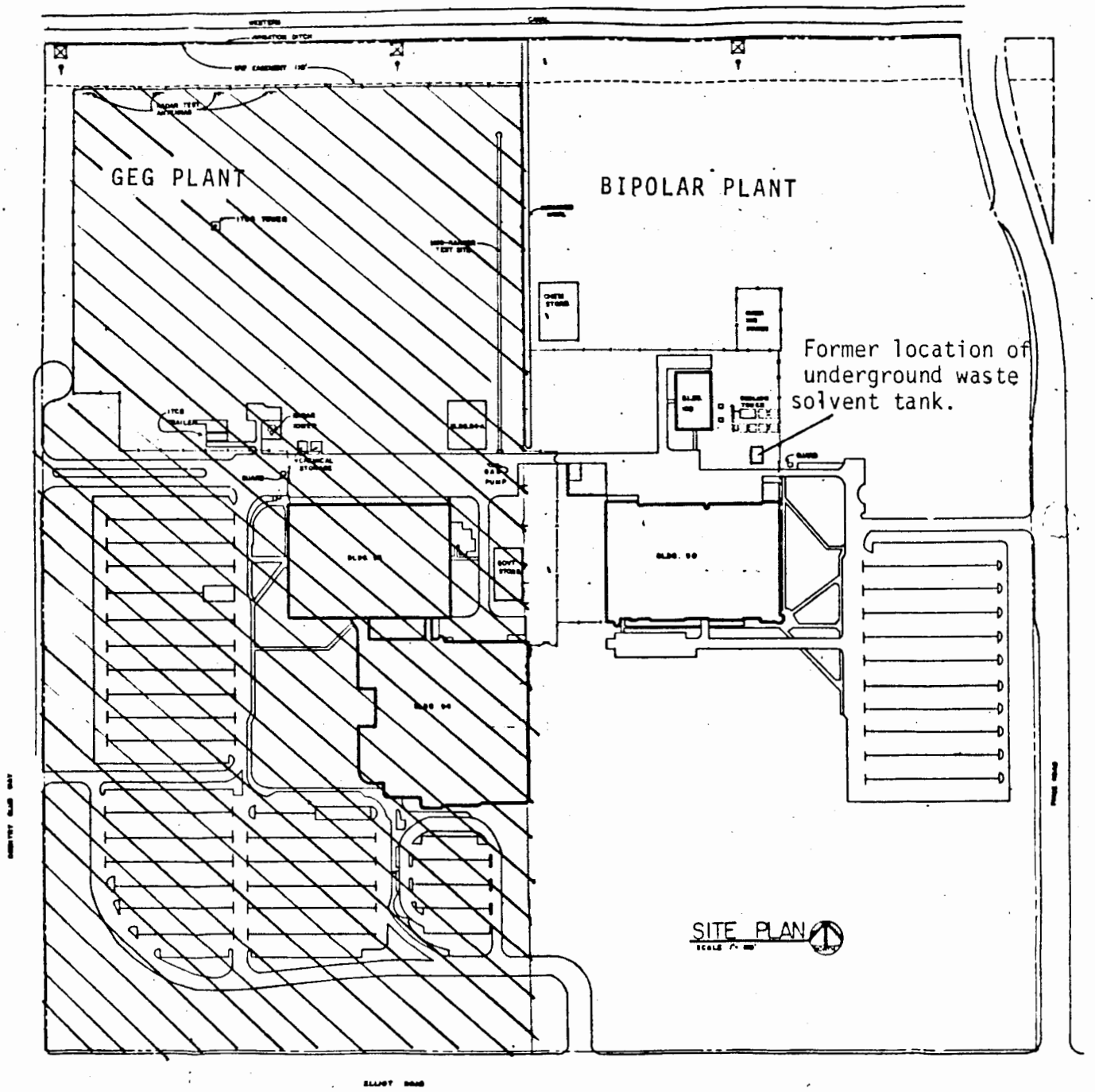
E. Closure Costs

Costs for partial closure of the leaking waste solvent tank were as follows:

Waste disposal (solvents and soil)	$16,305.64
Excavation	17,363.40
Soil sampling and chemical analyses (consultant)	7,033.12
Line rinsing	180.00
Closure certification	1,950.00
	$42,832.16

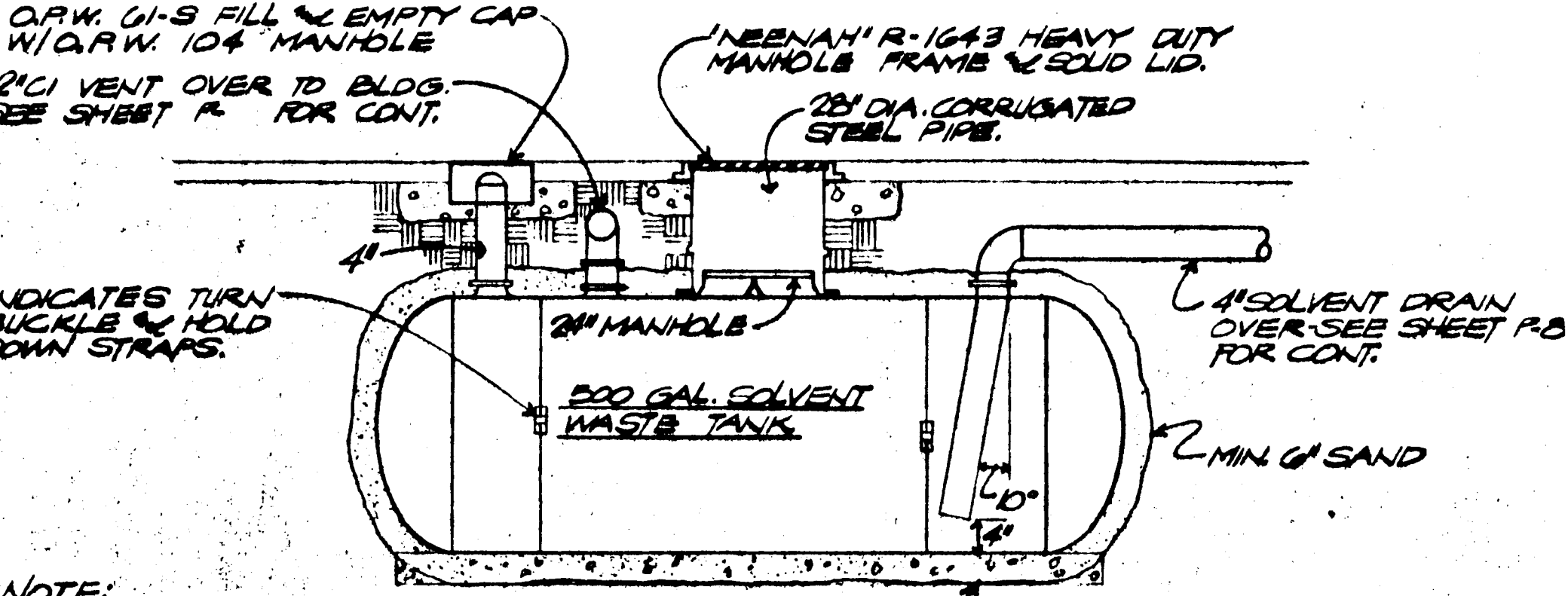
F. Schedule

A summary schedule of closure activities is presented in Table VI.



SITE PLAN

Figure 1



5 P-9 SOLVENT WASTE TANK DETAIL

NO SCALE

Figure 2

Table I

ESTIMATED SOLVENT USAGE FOR PERIOD 8/82-4/83

SEMICONDUCTOR PRODUCT SECTOR OPERATIONS - PRICE ROAD

BUBBLE MEMORY

ITEM	GALLONS/MO.	LBS/MO.
ISOPROPYL ALCOHOL	123.0	
XYLENE	1.0	
ACETONE	84.0	
n-BUTYL ACETATE	2.7	
30% HMDS IN FREON	.2	
n-METHYL PYRROLIDONE	.9	
FREON TMC	12.3	
METHYLENE CHLORIDE	15.0	
GENESOLVE D TTF	7.0	
FREON TMC (AEROSOL)		43.0
POSITIVE RESIST	16.0	
TOLUENE	.1	
METHANOL	.2	
PYRALIN (POLYIMIDE)	.4	
POLYIMIDE THINNER	1.0	
EPOXY RESIN	2.7	
ANTIREFLECTIVE COATING	.9	

LINEAR FINAL TEST

ITEM	GALLONS/MO.
ACETONE	47.0
GENESOLVE D TTF	21.0
MARKEM CLEANER	15.0
ISOPROPYL ALCOHOL	6.0
CHLOROTHENE VG	.4

Table II

ANALYTICAL TECHNOLOGIES, INC. I.D. #23-070006

ANALYSIS OF PRICE ROAD WASTE SOLVENT

Date Sampled	9/14/83
Date Analyzed	9/15/83

2 Phases -	Organic Layer	20%
	Water Layer	80%

Organic layer comprised of

7.8%	Acetone
7.2%	2 - Propanol
5.0%	Butyl Acetate

Water layer contained the following constituents at a part per million concentration level.

18.6	Acetone
0.7	2 - Propanol
10.6	Ethyl Acetate
0.4	Benzene
0.03	Perchloroethylene
0.11	Butyl Acetate

Table III

MOTOROLA INC.

Semiconductor Products Sector
Inter-Office Correspondence

Date: JANUARY 31, 1984

From: RHONDA BROACH

To: MAURICE CHAIT

Phone: 962-3225 Mail Drop M170

CC: BEN FERNANDEZ
JIM MICHALAK
TED WERNER

SUBJECT: PRICE ROAD WASTE SOLVENT TANK LEAK

THE SOIL MOST RECENTLY REMOVED FROM THE EXCAVATION HAS BEEN TESTED AND WILL BE TESTED WEEKLY UNTIL THERE IS NO INDICATION OF SOLVENT CONTAMINATION. AT PRESENT, THERE ARE TRACE LEVELS OF ACETONE (GREATER THAN 1 PPM) IN THE THREE PILES OF SOIL LOCATED NEAR THE EXCAVATION. A CORE SAMPLE TAKEN FROM ONE OF THE PILES (LABELED PILE #2) REVEALED A HIGH CONCENTRATION OF 2-PROPANOL.

THE ABOVE RESULTS INDICATE THAT THIS SOIL REMAINS CONTAMINATED AND WILL NOT BE REMOVED FROM THE SITE UNTIL FURTHER TEST RESULTS PROVE THAT IT IS NO LONGER CONTAMINATED (LESS THAN 1 PPM OF ANY SOLVENT MATERIAL).

I WILL KEEP YOU POSTED ON THE RESULTS OF FUTURE TESTING SO THAT FURTHER ACTION COULD BE TAKEN EXPEDITIOUSLY.

Rhonda Broach

Table IV

MOTOROLA INC.

Semiconductor Products Sector
Inter-Office Correspondence

Date: AUGUST 24, 1984

From: RHONDA BROACH

To: MAURICE CHAIT

Phone: 3225 Mail Drop M170

CC: BEN FERNANDEZ
JIM MICHALAK
SUSAN SWICK

SUBJECT: PRICE ROAD WASTE SOLVENT TANK LEAK

BASED ON THE RESULTS STATED IN THE MEMO OF JANUARY 31ST, THE CONTAMINATED SOIL WAS SPREAD ON PLASTIC SHEETING TO EXPEDITE THE DECONTAMINATION PROCESS. ON MARCH 14TH, THIS SOIL WAS SAMPLED AND ANALYZED. THE ANALYSIS CONSISTED OF A SOIL EXTRACTION WITH CARBON DISULFIDE FOLLOWED BY MANUAL INJECTION OF THE EXTRACT INTO A 5880A HP GAS CHROMATOGRAPH. THE GAS CHROMATOGRAPHIC ANALYSIS INDICATED THAT SOLVENT CONTAMINATION WAS STILL PREVALENT.

ON MAY 3RD, SAMPLING AND TESTING OF THE SOIL AS DESCRIBED ABOVE PROVED THAT THERE WERE NO LONGER DETECTABLE LEVELS OF SOLVENT. NO FURTHER SOIL TESTING WAS REQUIRED.

Rhonda

RHONDA BROACH
ENVIRONMENTAL COMPLIANCE

WESTERN TECHNOLOGIES INC.

3737 East Broadway Road
P.O. Box 21387
Phoenix, Arizona 85036
(602) 437-3737

Table V

LABORATORY REPORT

Client Motorola, Inc.
2200 W. Broadway Rd.
Mesa, AZ 85202
Attn: Maurice Chait

Job No.
Lab./Invoice No. 2174W113
Date of Report 8/16/84
Reviewed By R. Ann Dougherty

Project Solvent Tank Closure Plan
Location 2100 E. Elliot, Tempe, AZ
Material/Specimen Pipe Rinse Water Sampled By WTI Date 8/2/84
Source Submitted By WTI Date 8/3/84
Test Procedure Gas Chromatography Authorized By SPH Date 8/8/84

RESULTS

Two water samples were received for analysis of solvents. Both samples were extracted into carbon disulfide and analyzed using gas chromatography equipped with a flame ionization detector. The results of these analysis are as follows.

Parameter mg/L	84-0011 First Rinse	84-0012 Final Rinse
Acetone	<1.	<1.
Isopropyl alcohol	<1.	<1.
Butyl acetate	<1.	<1.
Ethyl acetate	<1.	<1.
Butyl cellosolve	235.	<1.
Xylenes	72.7	<1.

Copies to:

Table VI

Schedule
Partial Closure Activities

Date	Activity
September 14, 1983	Decrease in liquid level of tank noticed. Sample of waste solvent taken and sent to independent laboratory.
September 15, 1983	Tank contents removed, tank rinsed. Leak confirmed.
September 16, 1983	Release reported to ADHS, EPA Region IX, and National Response Center.
September 19, 1983	Waste solvent tank removed.
September 22-28, 1983	Pit excavated.
September 28-30, 1983	Soil samples obtained.
October 10, 1983	Pit enlarged, soil excavated.
October 17, 1983	Second soil samples obtained.
October 21 and November 4, 1983	Pit enlarged second time, soil excavated.
November 8, 1983	Third soil samples obtained.
November 1983	Additional soil excavated, spread on plastic sheeting.
January 31, 1984	Weekly analysis of spread soil begun.
March 14, 1984	Analyses showed contamination of spread soil still prevalent.
May 3, 1984	Analyses showed no detectable levels of solvent in spread soil.
August 2, 1984	Associated piping rinsed.
August 24, 1984	Pit backfilled, closure completed.

Motorola Inc.
Job No. 2174J066

APPENDIX A

MANIFESTS

HAZARDOUS WASTE MANIFEST

STRAIGHT BILL OF LADING

ORIGINAL - NOT NEGOTIABLE

MANIFEST DOCUMENT NUMBER: 832-I-003

TO:		FROM:	
T/S/D FACILITY	CHEMICAL WASTE MANAGEMENT	Generator	MOTOROLA INC.
E.P.A. ID Code No.	AZT050010180	E.P.A. ID Code No.	AZT000618512
Address	2301 W. BROADWAY	Address	2100 E. ELLIOT RD.
Destination	PHOENIX, AZ.	Origin	TEMPE, ARIZONA 85284
Phone	602-243-6154	Phone	602-962-2187

No.	DOT PROPER SHIPPING NAME	HAZARD CLASS	ID No.	EPA HW No.	WEIGHT	LABELS REQUIRED
1	WASTE SOLVENT, N.O.S.	FLAMMABLE	UN1993	D001	300	NONE
VAC TRK		LIQUID			GAL	

PLACARDS REQUIRED: FLAMMABLE LIQUID (UN1993)

NOTE - Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding $_____ Per _____

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

FREIGHT CHARGES: PREPAID ☐ COLLECT ☐

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

ALTERNATE DESTINATION (EMERGENCY ONLY)

T/S/D FACILITY: RETURN TO SENDER
E.P.A. ID Code No. _____
Address _____
Destination _____

EMERGENCY RESPONSE INFORMATION

CONTACT Name: MAURICE CHAIT
Phone: 602-962-2187
National Response Center: 1-800-424-8802 in D. C. 426-2675

CERTIFICATION

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation and the E.P.A.

Generator Signature: Ray Duncan Date: 9-15-83

TRANSPORTER #1: CHEMICAL WASTE MANAGEMENT INC. E.P.A. ID No.: AZT050010180
Address: 2301 WEST BROADWAY
City: PHOENIX State: AZ Zip: _____ Phone: 602-243-6154

This is to certify acceptance of the hazardous waste shipment.
Transporter No. 1 Signature: John R Roberts Date: 15 Sep 83

TRANSPORTER #2: _____ E.P.A. ID No.: _____
Address: _____
City: _____ State: _____ Zip: _____ Phone: _____

This is to certify acceptance of the hazardous waste shipment.
Transporter No. 2 Signature: _____ Date: _____

TREATMENT/STORAGE/DISPOSAL FACILITY

This is to certify acceptance of the hazardous waste for treatment, storage, or disposal.
T/S/D FACILITY Signature: _____ Date: _____

HAZARDOUS WASTE MANIFEST

STRAIGHT BILL OF LADING #5306
ORIGINAL - NOT NEGOTIABLE

MANIFEST DOCUMENT NUMBER: 006-000001

TO:		FROM:	
T/S/D FACILITY	CHEMICAL WASTE MANAGEMENT	Generator	MOTOROLA INC.
E.P.A. ID Code No.	AZT050010180	E.P.A. ID Code No.	AZT000618512
Address	2301 W. BROADWAY	Address	2100 E. ELLIOT RD.
Destination	PHOENIX, AZ.	Origin	TEMPE, ARIZONA 85284
Phone	602-243-6154	Phone	602-962-2187

No Shipping Units	D.O.T. PROPER SHIPPING NAME	HAZARD CLASS	Haz Mat ID No	EPA Haz Waste No	WEIGHT	LABELS REQUIRED (or Exemption No.)
1	HAZARDOUS WASTE SOLID,	ORM-E	NA9189	F001	10	NONE
CT	N.O.S., (CONTAMINATED SOIL WITH ACETONE,				YD. 17	D.D.
	ISOPROPYL ALCOHOL, ETHYL ACETATE, BUTY ACETATE,					
	PERCHLOROETHYLENE, BENZENE)					

PLACARDS REQUIRED: NONE

NOTE - Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding $_____ Per _____

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
(Signature of Consignor)

FREIGHT CHARGES PREPAID ☐ COLLECT ☐

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

ALTERNATE DESTINATION (EMERGENCY ONLY)

T/S/D FACILITY: RETURN TO SENDER
E.P.A. ID Code No. _____
Address _____
Destination _____

EMERGENCY RESPONSE INFORMATION

CONTACT Name: MAURICE CHAIT
Phone: 602-962-2187
National Response Center: 1-800-424-8802 in D. C. 426-2675

CERTIFICATION

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation and the E.P.A.

Generator Signature: Maurice Chait Date: 9-22-83

TRANSPORTER #1 CHEMICAL WASTE MANAGEMENT INC. E.P.A. ID No. AZT050010180
Address: 2301 WEST BROADWAY
City: PHOENIX State: AZ. Zip: _____ Phone: 602-243-6154
Transporter No. 1 Signature: Donald E Harmon This is to certify acceptance of the hazardous waste shipment. Date: 9-26-83

TRANSPORTER #2 _____ E.P.A. ID No. _____
Address _____
City _____ State _____ Zip _____ Phone _____
Transporter No. 2 Signature _____ This is to certify acceptance of the hazardous waste shipment. Date _____

TREATMENT/STORAGE/DISPOSAL FACILITY 59033
T/S/D FACILITY Signature: J. Bustrock This is to certify acceptance of the hazardous waste for treatment, storage, or disposal. Date: 9/26/83

ORIGINAL - RETURN TO GENERATOR

HAZARDOUS WASTE

HAZARDOUS WASTE MANIFEST

STRAIGHT BILL OF LADING

ORIGINAL - NOT NEGOTIABLE

MANIFEST DOCUMENT NUMBER: 006-000002

TO:		FROM:	
T/S/D FACILITY	CHEMICAL WASTE MANAGEMENT	Generator	MOTOROLA INC.
E.P.A. ID Code No.	AZT050010180	E.P.A. ID Code No.	AZT000618512
Address	2301 W. BROADWAY	Address	2100 E. ELLIOT RD.
Destination	PHOENIX, AZ. 85005	Origin	TEMPE, ARIZONA 85284
Phone	602-243-6154	Phone	602-962-2187

No. Shipping Units	D.O.T. PROPER SHIPPING NAME	HAZARD CLASS	Haz. Mat. I.D. No.	EPA Haz Waste No.	WEIGHT	LABELS REQUIRED (or Exemption No.)
1 BIN	HAZARDOUS WASTE SOLID, N.O.S., (CONTAMINATED SOIL WITH ACETONE, ISOPROPYL ALCOHOL, ETHYL ACETATE, BUTYL ACETATE, PERCHLO-ROETHYLENE, BENZENE)	ORM-E	NA9189	F001	15 YD.	NONE

PLACARDS REQUIRED: FLAMMABLE LIQUID (UN1993)

NOTE - Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding $______ Per ______

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

FREIGHT CHARGES: PREPAID ☐ COLLECT ☐

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

ALTERNATE DESTINATION (EMERGENCY ONLY)

T/S/D FACILITY: RETURN TO SENDER
E.P.A. ID Code No.:
Address:
Destination:

EMERGENCY RESPONSE INFORMATION

CONTACT Name: MAURICE CHAIT
Phone: 602-962-2187

National Response Center 1-800-424-8802
in D.C. 426-2675

CERTIFICATION

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation and the E.P.A.

Generator Signature: Maurice Chait Date: 9-28-83

TRANSPORTER #1: CHEMICAL WASTE MANAGEMENT INC. E.P.A. ID No.: AZT050010180
Address: 2301 WEST BROADWAY
City: PHOENIX State: AZ Zip: 85005 Phone: 602-243-6154

This is to certify acceptance of the hazardous waste shipment.

Transporter No. 1 Signature: [signature] Date: 10-10-83

TRANSPORTER #2: E.P.A. ID No.:
Address:
City: State: Zip: Phone:

This is to certify acceptance of the hazardous waste shipment.

Transporter No. 2 Signature: Date:

TREATMENT/STORAGE/DISPOSAL FACILITY

This is to certify acceptance of the hazardous waste for treatment, storage, or disposal.

T/S/D FACILITY Signature: [signature] Date: 10-10-83

ORIGINAL - RETURN TO GENERATOR

HAZARDOUS WASTE MANIFEST

STRAIGHT BILL OF LADING

ORIGINAL - NOT NEGOTIABLE

Gross 52,180

MANIFEST DOCUMENT NUMBER

006-000003

TO:		FROM:	
T/S/D FACILITY	CHEMICAL WASTE MANAGEMENT	Generator	MOTOROLA INC.
E.P.A. ID Code No.	AZT050010180	E.P.A. ID Code No.	AZT000618512
Address	2301 W. BROADWAY	Address	2100 E. ELLIOT RD.
Destination	PHOENIX, AZ. 85005	Origin	TEMPE, ARIZONA 85284
Phone	602-243-6154	Phone	602-962-2187

No. Shipping Units	D.O.T. PROPER SHIPPING NAME	HAZARD CLASS	Haz. Mat. I.D. No.	EPA Haz. Waste No.	WEIGHT	LABELS REQUIRED (or Exemption No.)
1 BIN	HAZARDOUS WASTE SOLID, N.O.S., (CONTAMINATED SOIL WITH ACETONE, ISOPROPYL ALCOHOL, ETHYL ACETATE BUTYL ACETATE, PERCHLOROETHYLENE, BENZENE)	ORM-E	NA9189	F001	15 YD.	NONE

PLACARDS REQUIRED NONE

NOTE - Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

$_____ Per _____

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____
(Signature of Consignor)

FREIGHT CHARGES PREPAID ☐ COLLECT ☐

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

ALTERNATE DESTINATION (EMERGENCY ONLY)	EMERGENCY RESPONSE INFORMATION
T/S/D FACILITY RETURN TO SENDER	CONTACT Name MAURICE CHAIT
E.P.A. ID Code No.	Phone 602-962-2187
Address	National Response Center 1-800-424-8802 in D. C. 426-2675
Destination	

CERTIFICATION

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation and the E.P.A.

Generator Signature Maurice Chait Date 10-10-83

TRANSPORTER #1 CHEMICAL WASTE MANAGEMENT INC. E.P.A. ID No. AZT050010180

Address 2301 WEST BROADWAY

City PHOENIX State AZ Zip _____ Phone 602-243-6154

This is to certify acceptance of the hazardous waste shipment.

Transporter No. 1 Signature John R Rodonk Date 14 OCT 83

TRANSPORTER #2 _____ E.P.A. ID No. _____

Address _____

City _____ State _____ Zip _____ Phone _____

This is to certify acceptance of the hazardous waste shipment.

Transporter No. 2 Signature _____ Date _____

TREATMENT/STORAGE/DISPOSAL FACILITY 59033

This is to certify acceptance of the hazardous waste for treatment, storage, or disposal.

T/S/D FACILITY Signature _____ Date 10-17-83

ORIGINAL - RETURN TO GENERATOR

7-BLS-C (5 PL) YY

HAZARDOUS WASTE MANIFEST

STRAIGHT BILL OF LADING

ORIGINAL - NOT NEGOTIABLE

BIN 5305

MANIFEST DOCUMENT NUMBER

006 - 000004

TO:		FROM:	
T/S/D FACILITY	CHEMICAL WASTE MANAGEMENT	Generator	MOTOROLA INC.
E.P.A. ID Code No.	AZT050010180	E.P.A. ID Code No.	AZT000618512
Address	2301 W. BROADWAY	Address	2100 E. ELLIOT RD.
Destination	PHOENIX, AZ. 85005	Origin	TEMPE, ARIZONA 85284
Phone	602-243-6154	Phone	602-962-2187

No. Shipping Units	D.O.T. PROPER SHIPPING NAME	HAZARD CLASS	Haz. Mat. I.D. No.	EPA Haz Waste No.	WEIGHT	LABELS REQUIRED (or Exemption No.)
1 BINS	HAZARDOUS WASTE SOLID, N.O.S., (CONTAMINATED SOIL WITH ACETONE, ISOPROPYL ALCOHOL, ETHYL ACETATE BUTYL ACETATE, PERCHLOROETHYLENE, BENZENE)	ORM-E	NA9189	F001	15 YDS	NONE

PLACARDS REQUIRED NONE

NOTE - Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

$_____ Per _____

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____
(Signature of Consignor)

FREIGHT CHARGES PREPAID ☐ COLLECT ☐

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

ALTERNATE DESTINATION (EMERGENCY ONLY)

T/S/D FACILITY RETURN TO SENDER
E.P.A. ID Code No. _____
Address _____
Destination _____

EMERGENCY RESPONSE INFORMATION

CONTACT Name MAURICE CHAIT
Phone 602-962-2187
National Response Center 1-800-424-8802 in D. C. 426-2675

CERTIFICATION

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation and the E.P.A.

Generator Signature Maurice Chait Date 10-21-83

TRANSPORTER #1 CHEMICAL WASTE MANAGEMENT INC. E.P.A. ID No. AZT050010180
Address 2301 WEST BROADWAY
City PHOENIX State AZ Zip _____ Phone 602-243-6154

This is to certify acceptance of the hazardous waste shipment.

Transporter No. 1 Signature John R Roberts Date 21 OCT 83

TRANSPORTER #2 _____ E.P.A. ID No. _____
Address _____
City _____ State _____ Zip _____ Phone _____

This is to certify acceptance of the hazardous waste shipment.

Transporter No. 2 Signature _____ Date _____

TREATMENT STORAGE DISPOSAL FACILITY

This is to certify acceptance of the hazardous waste for treatment, storage, or disposal.

T/S/D FACILITY Signature _____ Date 10/25/83

5903J

HAZARDOUS WASTE MANIFEST

THIS SHIPPING ORDER must be legibly filled in, in Ink, in Indelible Pencil, or in Carbon, and retained by the Agent.

MANIFEST DOCUMENT NUMBER: 006-000006

BIN 5208
18,740#
GROSS 45150 LBS

TO:		FROM:	
T/S/D FACILITY	CHEMICAL WASTE MANAGEMEN	Generator	MOTOROLA INC.
E.P.A. ID Code No.	AZT050010180	E.P.A. ID Code No.	AZT000618512
Address	2301 W. BROADWAY	Address	2100 E. ELLIOT RD.
Destination	PHOENIX, AZ. 85005	Origin	TEMPE, ARIZONA 85284
Phone	602-243-6154	Phone	602-962-2187

No. Shipping Units	D.O.T. PROPER SHIPPING NAME	HAZARD CLASS	Haz. Mat. I.D. No.	EPA Haz. Waste No.	WEIGHT	LABELS REQUIRED (or Exemption No.)
BIN	HAZARDOUS WASTE SOLID, N.O.S., (CONTAMINATED SOIL WITH ACETONE, ISOPROPYL ALCOHOL, ETHYL ACETATE BUTYL ACETATE, ~~[illegible]~~	ORM-E	NA9189	F001	18 YD.	NONE

PLACARDS REQUIRED NONE

NOTE - Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding
$_____ Per_____

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
_____ (Signature of Consignor)

FREIGHT CHARGES: PREPAID ☐ COLLECT ☐

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

ALTERNATE DESTINATION (EMERGENCY ONLY)

T/S/D FACILITY: RETURN TO SENDER
E.P.A. ID Code No.:
Address:
Destination:

EMERGENCY RESPONSE INFORMATION

CONTACT Name: MAURICE CHAIT
Phone: 602-962-2187
National Response Center: 1-800-424-8802 in D. C. 426-2675

CERTIFICATION

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation and the E.P.A.

Generator Signature: Maurice Chait Date: 11-4-83

TRANSPORTER #1: CHEMICAL WASTE MANAGEMENT INC. E.P.A. ID No.: AZT050010180
Address: 2301 WEST BROADWAY
City: PHOENIX State: AZ Zip: Phone: 602-243-6154

Transporter No. 1 Signature: John R Rudnick This is to certify acceptance of the hazardous waste shipment. Date: 9 NOV 83

TRANSPORTER #2: E.P.A. ID No.:
Address:
City: State: Zip: Phone:

Transporter No. 2 Signature: This is to certify acceptance of the hazardous waste shipment. Date:

TREATMENT/STORAGE/DISPOSAL FACILITY

T/S/D FACILITY Signature: This is to certify acceptance of the hazardous waste for treatment, storage, or disposal. Date: 11-11-83

TRANSPORTER #1 COPY

7-BLS-C (5 PLY)

Motorola Inc.
Job No. 2174J066

APPENDIX B

CLOSURE PLAN

MOTOROLA/PRICE ROAD SEMICONDUCTOR CLOSURE PLAN

1. Upon making the decision to close the Motorola/Bubble Memory T.S. facility, all hazardous material in storage will be shipped to a permitted disposal site. It is assumed that the maximum amount of material will be in storage at time of closure (600 drums). It is further assumed that no waste solvent will be in storage which is the worst case as a $0.17/gal. credit is received from reclaimers for this material.

2. The drum storage site will be decontaminated by cleaning with a high pressure, hot detergent spray. The cleaning solution will be contained in sumps. The solution will be pumped from the sumps into drums. The drummed materials will be tested to determine if it is acceptable for disposal in the City sewer. If not acceptable, the drums of cleaning liquid will be poured into diatomaceous earth and sent to a permitted disposal facility.

3. The waste solvent collection tank will be steam cleaned and filled with sand. It is assumed that no contaminated soil will require disposal as any leak will have been detected during periodic monitoring.

4. The above ground industrial waste tanks will be sold for scrap

5. The underground industrial waste receiver will be filled with sand.

6. An independant professional engineer will be engaged to certify the proper closure of the facility.

5. Closure cost are estimated at:

Removal of drummed waste, 600 drums at $46.50/drum	$27,900
Decontamination of pad & disposal of rinsate	25,000
Steam Cleaning of solvent tank	500
Sand filling of waste tanks	1,000
Engineering services	5,000
TOTAL CLOSURE COSTS	$59,400

6. It is estimated that 60 days will be required to accomplish the closure operation.

Motorola Inc.
Job No. 2174J066

APPENDIX C

SOIL SAMPLING REPORT NO. 1

WESTERN TECHNOLOGIES INC.

3737 East Broadway Road
P.O. Box 21387
Phoenix, Arizona 85036
(602) 437-3737

PROGRESS REPORT
SOIL SAMPLING PROJECT
MOTOROLA
PRICE AND ELLIOT ROADS
TEMPE

1. Test Program

A leaking waste solvent tank was removed. When organic odors were detected, contaminated soils were removed to produce a pit 8 feet wide, 9 feet long, and 15-1/2 feet deep. The tank had been positioned so that the bottom (where the leak was detected) was 14 feet below the surface (See Figure 1). All soils removed were placed in a roll-off container or on plastic.

Soil samples were taken at 14 feet below the surface. The samples were horizontal samples approximately 18 inches into each of the four pit side walls (4 samples).

Three soil samples were taken in the pit bottom. They were vertical samples approximately 18 inches below the pit bottom (3 samples).

One background sample was taken at the surface but away from the pit.

All samples were immediately placed in special sample containers. Minimal handling and exposure to the air was accomplished. All samples were immediately cooled using an ice bath.

The color of each soil sample was closely observed. If one or more samples exhibited appreciable difference in color, additional soil was taken at that sample site and placed in a larger sample container. If no sample exhibited color change, a representative sample was to be put in the larger container.

All samples were transported to the lab (8 samples total) for chemical analyses.

Chemical analyses were perfomed on the soil samples as follows:

> Solvent screening using gas chromotography with emphasis on butyl acetate, isopropyl alcohol, acetone and methylene chloride

Chemical analyses were performed on one soil sample for the established EPA Priority Pollutants.

2. Test Results

A total of eight samples was taken.

No unusual color changes were observed in any of the samples (See Table I). Thus, no additional samples were necessary.

Two small vials of soil were obtained from each soil boring sample. One vial contained soil representative of soil at the pit wall, and one vial contained soil representative of soil 18 inches into the pit wall. Additionally, a plastic bag full of soil at that sample point was also obtained. Sample locations are shown in Figure 1.

Chemical analyses of the soil samples are presented in Table II.

From these analyses, the following is concluded:

A. All contaminated soil resulting from the leaking waste solvent tank has not been removed.

B. The majority of the still contaminated soil is located along the north wall of the pit (Samples No. 2, 3 and 4).

C. While some contamination still existed in the other pit walls, all samples 18 inches into the wall were at low levels ($<$ 5.0 ppm).

D. Isopropanol and acetone were found in the pit floor samples on the south side.

It should be noted that Sample No. 1, the background sample, was not analyzed. The sample jar proved to be defective (not properly sealed), and any volatile organics escaped during transfer to the laboratory.

Sample No. 7 is being analyzed for the Priority Pollutants. Test results are not yet available.

3. Recommendations

A. Enlarge the pit by removing 2 feet of soil from the north wall, 1 foot each from the east, west and south walls, and deepening the pit by 2 feet. Final dimensions of the pit would be 10 feet wide, 12 feet long, and 17-1/2 feet deep.

B. Place all soil removed in a large roll-off container or temporarily on a sheet of 6 mil plastic. The contaminated soil should be handled by a licensed hazardous waste transporter and manifested to an approved hazardous waste disposal site.

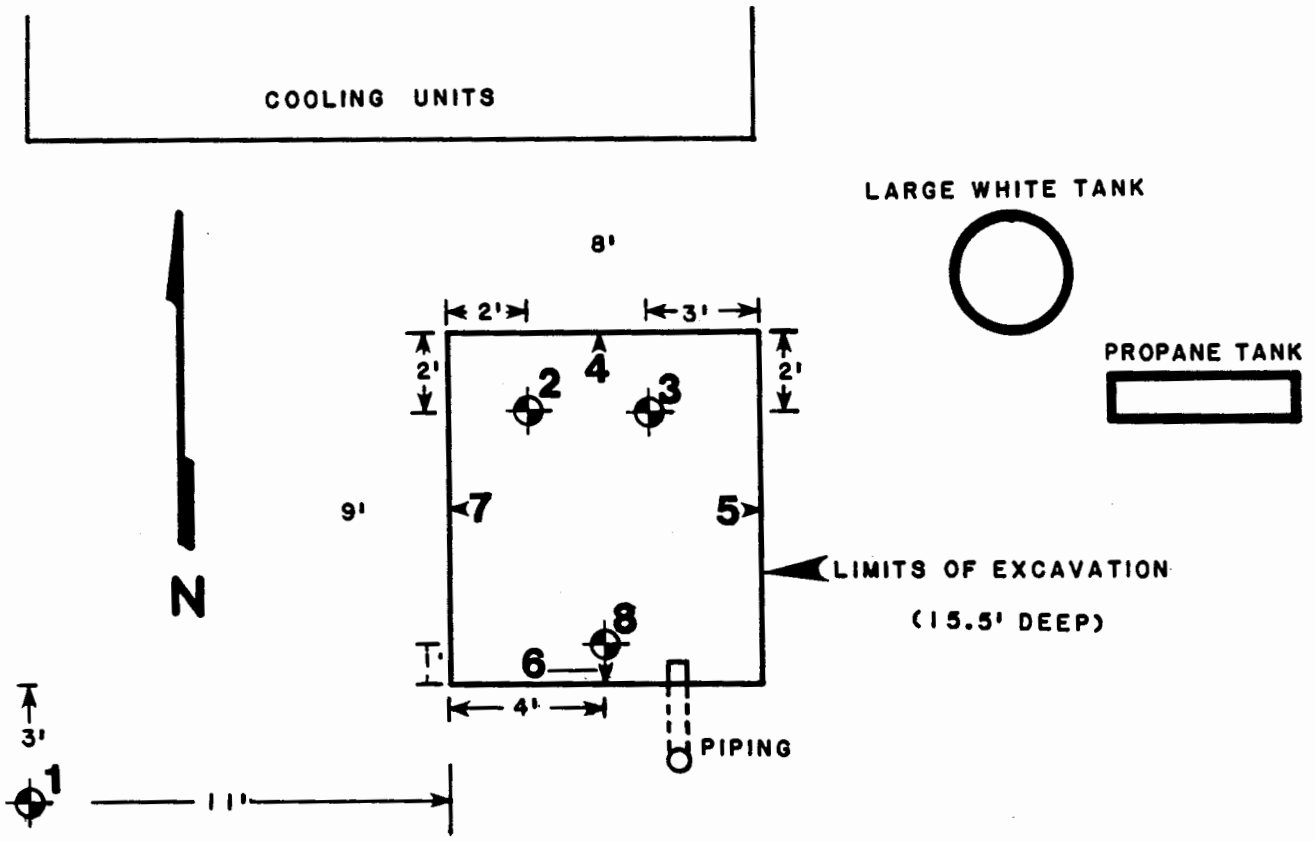
C. Re-sample the side walls and bottom of the enlarged pit in the same manner as the first sampling. Samples should again be obtained 14 feet below the surface and in the pit bottom.

D. Repeat the background surface sample and take care to assure use of containers which seal properly.

E. Perform solvent screen chemical analyses with emphasis on the presence of acetone, isopropanol, and butyl acetate. Methylene chloride was not found in any of the first samples; discontinue analyses. From data supplied by Motorola, ethyl acetate was present in the water phase in the solvent tank; therefore, analyze for ethyl acetate.

JOB NO. 2173J004

FIGURE 1



Prepared By _____ Date _____ Checked By _____ Date _____

Job No. 2173J004

TABLE I

Sample No.	Date	Location	Orientation	Description
1	9/28/83	On-surface (0-18")	18"V	Brown w/light cementation throughout
2	9/28/83	(16-17.5') at bottom of excavation	18"V	Rusty Brown w/white nodules - same throughout mod.-heavy cement.
3	9/28/83	(16-17.5') at bottom of excavation	18"V	Rusty Brown w/white nodules - same throughout mod.-heavy cement.
4	9/28-9/30*	14'-3" below surface on wall	18"H	1st 10" light below mod.-heavy cement. 2nd 8" light-mod. cement.
5	9/30/83	14'-6" below surface on wall	18"H	Rusty Brown, same throughout - mod.-heavy cementation
6	9/30/83	14'-6" below surface on wall	18"H	Rusty Brown, same throughout - mod.-heavy cementation
7	9/30/83	14'-3" below surface on wall	18"H	1st 7" trace cement, brown 2nd 9" Rusty Brown w/ white, mod. cement.
8	9/30/83	(16-17.6') at bottom of excavation	18"V	1st 9" light brown heavy cementation 2nd 9" dirty white, heavy cementation

*Sampler remained in ground for two days.

Sample No.	Sample Type
1	1 large jar
2	2 small vials (one at each end) and plastic bag
3	2 small vials and plastic bag
4	2 small vials and plastic bag
5	2 small vials and plastic bag
6	2 small vials and plastic bag
7	2 small vials and plastic bag
8	2 small vials and plastic bag

TABLE II

SOIL CHEMICAL ANALYSES
MOTOROLA, TEMPE

Sample No.	Butyl Acetate	Isopropanol	Acetone	Methylene Chloride
		ppm		
1*	--	--	--	--
2A**	< 5.0	126.5	87.6	< 5.0
2B**	< 5.0	106.3	61.5	< 5.0
3A	< 5.0	33.5	< 5.0	< 5.0
3B	< 5.0	39.8	< 5.0	< 5.0
4A	737.9	2730	373	< 5.0
4B	1070.1	1791.6	1037	< 5.0
5A	< 5.0	83.4	< 5.0	< 5.0
5B	< 5.0	< 5.0	< 5.0	< 5.0
6A	< 5.0	113.5	65.7	< 5.0
6B	< 5.0	< 5.0	< 5.0	< 5.0
7A***	--	--	--	--
7B***	--	--	--	--
8A	< 5.0	146.0	84.5	< 5.0
8B	< 5.0	141.8	82.1	< 5.0

Note:

* Sample discarded, not analyzed

** A = Sample closest to pit wall
B = Sample 18 inches into soil, away from pit wall

*** Sample 7 used for priority pollutant analyses

Motorola Inc.
Job No. 2174J066

APPENDIX D

SOIL SAMPLING REPORT NO. 2

Job No. 2173J004

SOIL RESAMPLING PROJECT
MOTOROLA
PRICE AND ELLIOT ROADS
TEMPE

1. A leaking waste solvent tank was removed. When organic odors were detected, contaminated soils were removed to produce a pit 8 feet wide, 9 feet long, and 15-1/2 feet deep. The tank had been positioned so that the bottom (where the leak was detected) was 14 feet below the surface.

2. The pit was enlarged after contaminants were found to still exist in the side walls and bottom. An additional 2 feet of soil was removed from the north wall, and the pit was deepened another 2 feet. The pit is now 8 feet wide, 11 feet long, and 17-1/2 feet deep.

3. Soil samples will be taken at 14 feet below the surface. The samples will be horizontal samples approximately 18 inches into each of the four pit side walls. Two vials of soil will be obtained from each sample. One vial will represent soil near the pit side wall and one vial will represent soil 18 inches into the wall.

4. Two soil samples will be taken in the pit bottom. They will be vertical samples approximately 18 inches below the pit bottom. As in 3 above, two vials of soil will be obtained from each sample -- one near the existing pit bottom and one 18 inches below the pit bottom.

5. A background sample will be obtained away from the pit area.

6. All samples will be immediately placed in the special sample containers (vials) supplied by the Chemical Lab. Minimal handling and exposure to the air will be accomplished. All samples will be immediately cooled using equipment supplied by the Lab.

7. The color of each soil sample will be closely observed.

8. All samples will be transported to the lab (7 samples total).

9. Chemical analyses will be performed on all samples as follows:

   Solvent screening -- emphasis on butyl acetate, ethyl acetate, isopropyl alcohol, acetone.

10. Work Schedule: Drilling and Sampling - Monday, October 17, 1983
    All chemical analyses completed - Monday, October 24, 1983

Job No. 2173J004 October 17, 1983

1. Centered on west wall, 14 ft below surface. Sandy clay; with silt (approx. 25% sand, 75% clays/silts) very heavily cemented with cemented nodules up to 1", slight color change approx. 12 inches into wall going from darker to lighter brown, medium plasticity, -PL, faint odor.

2. Centered on south wall, 14 ft from surface. Same material as #1.

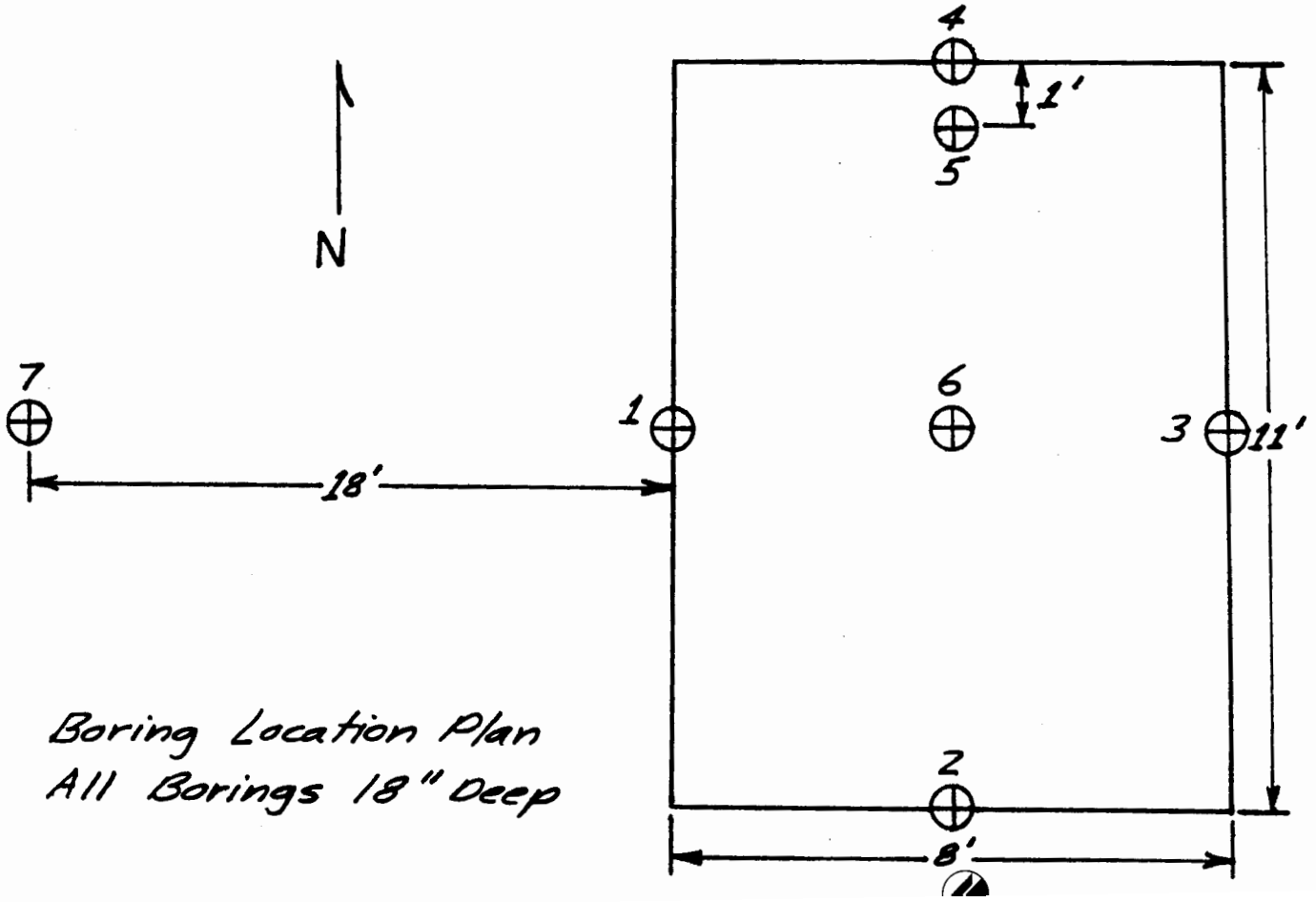
3. Centered on east wall, 14 ft from surface. Same material as #1. Very strong odor when penetrated.

4. Centered on north wall, 14 ft from below surface. Same material as #1. Very strong odor when penetrated.

5. 1 ft south of north wall on pit bottom. First 6 inches sandy clay; with silt, light color, moderate/heavy cementation. 6"-12" silty clay; some sand, dark brown, heavy cementation. 12"-18" silty clay; with sand, light brown, heavy cementation, -PL.

6. 4 ft west of east wall, 5 ft north of south wall on pit bottom. Entire 18" is sandy clay; with silt, light brown, heavy cementation, -PL.

7. 18 ft west of west wall, located on surface, centered on length of pit. Sandy clay; with silt, light brown over entire 18 inches sampled, moderate cementation, -PL, no odors encountered.



Boring Location Plan
All Borings 18" Deep

SOIL CHEMICAL TEST RESULTS
SECOND SAMPLING
MOTOROLA, TEMPE

Sample No.	Sample Location	Contaminants			
		Butyl Actetate	Ethyl Acetate	Isopropanol	Acetone
		ppm	ppm	ppm	ppm
1A*	West wall	< 5.0	< 5.0	437	342
1B*	West wall	< 5.0	< 5.0	< 5.0	< 5.0
2A	South wall	< 5.0	< 5.0	< 5.0	< 5.0
2B	South wall	< 5.0	< 5.0	< 5.0	< 5.0
3A	East wall	361.6	< 5.0	623	365.3
3B	East wall	< 5.0	< 5.0	56.9	44.5
4A	North wall	< 5.0	< 5.0	35.0	< 5.0
4B	North wall	< 5.0	< 5.0	< 5.0	< 5.0
5A	Bottom, north	155.1	< 5.0	46.0	551
5B	Bottom, north	1052.5	< 5.0	1637	19.4
6A	Bottom, center	< 5.0	< 5.0	89	70
6B	Bottom, center	< 5.0	< 5.0	170	133
7	Background	< 5.0	< 5.0	< 5.0	< 5.0

Note *A = sample from pit wall
B = sample 18 inches into pit wall

Recommendations

A. Enlarge the pit by removing 2 feet of soil from the east and west walls, 1 additional foot from the north wall, and deepening the pit. The depth (5 feet deeper, if possible) will be limited by the equipment used and the ability to stabilize the equipment while digging to increased depths. Precautions should be taken to prevent side wall collapse. Final dimensions of the pit would be 12 feet wide, 12 feet long, and the attained depth.

B. Removed soil can be disposed of at a landfill and does not have to be handled as hazardous waste.

C. Re-sample for a third time the side walls and bottom of the enlarged pit in the same manner as the first two samplings. Side wall samples should be obtained 14 feet below the surface.

D. Perform solvent screen chemical analyses of the soil samples looking for butyl acetate, isopropanol, and acetone. Discontinue analyses for ethyl acetate (none found).

Motorola Inc.
Job No. 2174J066

APPENDIX E

SOIL SAMPLING REPORT NO. 3

WESTERN TECHNOLOGIES INC.

3737 East Broadway Road
P.O. Box 21387
Phoenix, Arizona 85036
(602) 437-3737

Job No. 2173J004

THIRD SOIL SAMPLING PROJECT MOTOROLA PRICE AND ELLIOT ROADS TEMPE

1. Test Program

A leaking waste solvent tank was removed. When organic odors were detected, contaminated soils were removed to produce a pit. The tank had been positioned so that the bottom (where the leak was detected) was 14 feet below the surface. Refer to WTI test reports dated October 11, 1983 and October 21, 1983 regarding initial and second soil sampling efforts.

The pit was enlarged a second time after contaminants were found to still exist in the side walls and bottom. Additional soil was removed from all side walls, and the pit was deepened. Final dimensions were 14 feet wide, 16 feet long, and 20 feet deep. Figure 1 illustrates the pit.

Soil samples were taken at 14 feet below the surface. The samples were horizontal samples approximately 18 inches into each of the four pit side walls. Two vials of soil were obtained from each sample. One vial represented soil near the pit side wall, and the other vial represented soil 18 inches into the wall.

Two soil samples were taken in the pit bottom. They were vertical samples approximately 18 inches below the pit bottom. As above, two vials of soil were obtained from each sample -- one near the existing pit bottom and one 18 inches below the pit bottom.

Location of the soil samples in the pit are shown in Figure 1.

All samples were immediately placed in special sample containers (vials). Minimal handling and exposure to the air was assured. All samples were immediately cooled using an ice bath.

The color of each soil sample was closely observed.

All samples were transported to the laboratory (12 samples total) for chemical analyses.

Chemical analyses were performed on all samples as follows:

> Solvent screening using gas chromatography with emphasis on butyl acetate, ethyl acetate, isopropyl alcohol, and acetone.

2. Test Results

No unusual color of the soils was observed. The soil was very dense and hard. Difficulty in obtaining all samples 18 inches into the walls or pit bottom was experienced. See Figure 1 for soil descriptions.

Chemical analyses of the soil samples are presented in Table I.

A comparison of results of the three soil sampling tests is presented in Table II.

3. Discussion

Only one problem area was found -- the southeast corner of the pit bottom. Samples taken in this area showed high levels of isopropanol. Concentrations of isopropanol in this area were

not found in the previous two tests (see Table II) suggesting some unusual occurrence. Discussions with Motorola personnel and their follow-up investigation revealed that a small quantity of isopropanol was inadvertently dumped down the solvent waste drain after the solvent tank had been removed. When workers enlarged the pit, the plug in the line to the former waste solvent tank was removed and about one gallon of isopropanol spilled into the southeast corner of the pit. This would explain the high concentrations measured in the soil in that area and the highly localized area found.

The only other areas where elevated contaminant (isopropanol) concentrations were found were the surface of the east and west walls. In both instances, concentrations dropped to <1.0 ppm 18 inches into the wall. Thus, no large quantities of contaminants still exist in those walls.

Careful examination of the data developed during the three tests (see Table II) generally shows steady improvement and lowering of contaminant concentrations in the soil as the pit was enlarged. One is cautioned in using Table II since the pit was enlarged twice (pit dimensions are shown at the bottom of Table II) and since the pit bottom or wall samples were not taken from exactly the same locations during each test. The data is presented for comparison purposes only. From these comparisons, it is concluded that most of the contaminants were located under the tank and had migrated to the east and north.

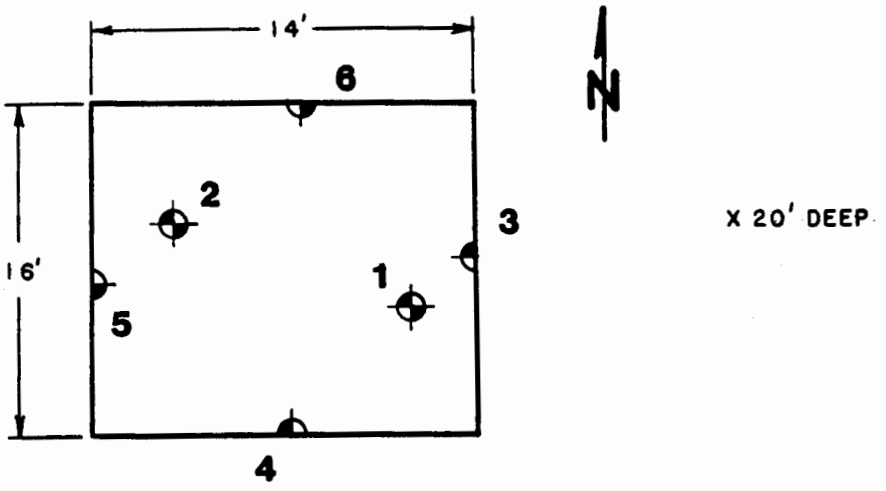
4. Conclusion

Removal of contaminated soils due to the leaking solvent waste tank has been completed. While some contaminants still exist

on pit wall surfaces and in highly localized areas, a reasonable effort at clean-up has been accomplished. Furthermore, the offending pollutant source, the leaking tank, has been removed and no further contamination of the area can occur. Further migration of residual contaminants will be extremely limited.

Motorola (Price and Elliot)
Job No. 2173J004

Figure 1



#	Orientation	Depth	Description
1(*)	V	20'-20'8"	White, very dense, hard
2(*)	V	20'-20'5"	White, very dense, hard
3	H	@14'6"; 0-18"	Light brown, loose, friable nodules
4	H	@14'3"; 0-18"	Light brown, w/hard cemented white nodules, very dense, hard
5(**)	H	@14'; 0-12"	0-10" Light brown w/white friable nodules, medium dense 10-12" brown/dark brown, loose
6	H	@14'3"; 0-18"	Brown w/some white, loose, friable nodules

(*) Material on floor very hard and difficult to penetrate
(**) Linkage from jack-hammer broke when at 12"

TABLE I

SOIL CHEMICAL ANALYSES
MOTOROLA, TEMPE

Sample Site No.	Sample Location	Butyl Acetate ppm	Ethyl Acetate ppm	Isopropanol ppm	Acetone ppm
1	Pit bottom, SE	8.8	<1.0	957	<1.0
	18 in. into bottom	<1.0	<1.0	1868	<1.0
2	Pit bottom, NW	<1.0	<1.0	13.7	<1.0
	18 in. into bottom	<1.0	<1.0	<1.0	<1.0
3	East pit wall	<1.0	<1.0	253	<1.0
	18 in. into wall	<1.0	<1.0	<1.0	<1.0
4	South pit wall	<1.0	<1.0	<1.0	<1.0
	18 in. into wall	<1.0	<1.0	<1.0	<1.0
5	West pit wall	<1.0	<1.0	253	<1.0
	18 in. into wall	<1.0	<1.0	<1.0	<1.0
6	North pit wall	<1.0	<1.0	<1.0	<1.0
	18 in. into wall	<1.0	<1.0	<1.0	<1.0

TABLE II

COMPARISON OF SOIL ANALYSES
MOTOROLA, TEMPE

Sample Location	Butyl Acetate, ppm			Isopropanol, ppm			Acetone, ppm		
	Test 1	Test 2	Test 3	Test 1	Test 2	Test 3	Test 1	Test 2	Test 3
Pit bottom, north	<5.0	115.1	<1.0	126.5	46.0	13.7	87.6	551	<1.0
18 in. into bottom, north	<5.0	1052.5	<1.0	106.3	1637	<1.0	61.5	19.4	<1.0
Pit bottom, south	<5.0	--	8.8	146.0	--	957	84.0	--	<1.0
18 in. into bottom, south	<5.0	--	<1.0	141.8	--	1868	82.1	--	<1.0
East pit wall	<5.0	361.6	<1.0	83.4	623	253	<5.0	365.3	<1.0
18 in. into wall	<5.0	<5.0	<1.0	<5.0	56.9	<1.0	<5.0	44.5	<1.0
South pit wall	<5.0	<5.0	<1.0	113.5	<5.0	<1.0	65.7	<5.0	<1.0
18 in. into wall	<5.0	<5.0	<1.0	<5.0	<5.0	<1.0	<5.0	<5.0	<1.0
West pit wall	--	<5.0	<1.0	--	437	253	--	342	<1.0
18 in. into wall	--	<5.0	<1.0	--	<5.0	<1.0	--	<5.0	<1.0
North pit wall	737.9	<5.0	<1.0	2730	35.0	<1.0	373	<5.0	<1.0
18 in. into wall	1070.1	<5.0	<1.0	1791.6	<5.0	<1.0	1037	<5.0	<1.0

Note: Test 1 pit dimensions - 8 feet wide, 9 feet long, 15-1/2 feet deep
Test 2 pit dimensions - 8 feet wide, 11 feet long, 17-1/2 feet deep
Test 3 pit dimensions - 14 feet wide, 16 feet long, 20 feet deep

Motorola Inc.
Job No. 2174J066

APPENDIX F

PRIORITY POLLUTANT ANALYSES

WESTERN TECHNOLOGIES INC.

3737 East Broadway Road
P.O. Box 21387
Phoenix, Arizona 85036
(602) 268-1381

Mr. Maurice J. Chait, P.E.
Manager, Environmental Compliance
MS M170
Motorola Inc.
2200 West Broadway Road
Mesa, Arizona 85202

October 24, 1983

Dear Maurice:

Attached are the test results of the analyses performed for the priority pollutants on the soil sample from the pit at the Elliott and Price Road Motorola facility. The sample labeled 2173J004 is the Motorola sample.

As is shown, the only volatile organic compounds found were:

Ispropanol	3000 ppm
Acetone	300 ppm
Methylene chloride	1 ppm
Other volatile organics	$<$0.1 ppm

No semi-volatile organics were found.

The soil sample used for these analyses was sample No. 7 which was 14 feet below the surface on the west wall. This sample was from the first set obtained September 30, 1983.

From the test results, it can be concluded that no priority pollutants, except for those for which more detailed sampling and analyses have been and are being conducted, were found in the area.

Respectfully submitted,
WESTERN TECHNOLOGIES INC.

R. Bruce Scott

R. Bruce Scott, P.E.
Director, Environmental and
Chemical Materials Management

sa

Copies to: Addressee (3)

IT CORPORATION

IT ANALYTICAL SERVICES

WEST COAST TECHNICAL SERVICE DIVISION
17605 Fabrica Way • Cerritos, California 90701 • 213-921-9831

CERTIFICATE OF ANALYSIS

TO: Western Technologies
3737 E. Broadway Rd.
Phoenix, AZ 85036
Attn: F. Amalfi

DATE REPORTED: October 20, 1983
PROJECT CODE: 27474/yks
ORDER NUMBER: 2213P605

One (1) liquid sample labeled 22130763 and one (1) soil sample labeled 2173J004.

Both of the samples were analyzed for volatile organic compounds; additionally, the soil sample was analyzed for semi-volatile extractable organics. All analyses were performed using EPA approved methods. For the volatile analyses, a six foot glass column packed with 1% SP-1000 on Carbopack B, temperature programmed from 70°C to 220°C at ten degrees per minute, was interfaced with a Finnigan OWA mass spectrometer. For the semi-volatile analysis, a 30m x 0.32mm fused silica capillary column, temperature programmed from 30°C (four minute hold) to 300°C at ten degrees per minute, was interfaced with a Finnigan 4021 mass spectrometer. Results of the volatile analysis are given in Table I. Results of the semi-volatile analysis are given in Table II.

Michael Shelton
Analytical Chemist
Title:

Approved By

Table I.

Sample 22130763

Compound	Concentration (parts per million)
Ethanol	100
o-Xylene	55
Methyl acetate	30
Ethyl acetate	30
Methylene chloride	14
Ethyl methyl ether	10
Dimethyl disulfide	10
Other volatile organics	ND<1

Sample 2173J004

Isopropanol	3000
Acetone	300
Methylene chloride	1
Other volatile organics	ND<0.1

Table II.

Sample 2173J004

	Concentration (parts per million)
All semi-volatile extractable organics	ND<0.2

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.